

District 03 Mobility Performance Report

2018 Fourth Quarter

DEPARTMENT OF TRANSPORTATION

February 27, 2019
Office of Freeway Operations

District 03 Mobility Performance Report

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EXECUTIVE SUMMARY

Overview

Caltrans District 3 is comprised of eleven counties located in northern California. Most of the congestion and delay on the state highway system takes place in the urbanized areas of Sacramento, Yolo and Placer counties.

The Mobility Performance Report (MPR) quarterly analysis compares information from this quarter with information from the previous quarter and the prior year. The following performance measures were used to quantify freeway congestion in District 3 as well as to compare the different quarters:

- Bottleneck Locations
- Vehicle Miles of Travel (VMT)
- Vehicle Hours of Delay (VHD)
- Lost Lane Miles (equivalent lost productivity)
- Detector Health

This information is based on data collected by automated vehicle detector stations deployed on urban area freeways from the Caltrans Performance Measurement System (PeMS) every day of the quarter, twenty-four hours a day, where congestion is regularly experienced. The MPR presents congestion information for two speed thresholds: delay from vehicles traveling below 35 miles per hour (mph), and delay from vehicles traveling below 60 mph. The delay at the 35mph threshold represents severe congestion while delay at 60 mph represents all congestion, both light and heavy. These thresholds are set by Caltrans and are based upon traffic engineering experience and District 3 Office of Freeway Operations input.

FINDINGS

In the fourth quarter of 2018, the total delay on the on freeways in District 3 equaled 1.1 million vehicle hours of delay (VHD) at the 35mph speed threshold and 3.0 million VHD at the 60mph threshold. The average weekday delay experienced in this quarter was approximately 17,000 VHD at 35 mph, and 43,000 VHD at 60 mph. SR-51 continues to be the worst performing freeway in District 3 with 226,278 VHD caused by several severe bottlenecks.

SR 70E at North Beale Rd has the top bottleneck for the 3rd straight quarter and occurs in the PM peak hour just west of the Yuba River Bridge upon entering the City of Marysville. This route handles a significant work commute volume of Yuba County residents returning home from the Sacramento area. The transition from freeway facility to dense city main street with signalized intersections continues to be the main source of congestion for this bottleneck.

Top Ten Bottlenecks for 2018 Fourth Quarter

| Fwy | Name | Shift | Abs PM | CA PM | # Days Active | Avg Extent (Miles) | Total Delay (veh-hrs) | Total Duration (mins) |
|--------|--------------------|-------|--------|--------|---------------|--------------------|-----------------------|-----------------------|
| SR70-E | North Beale Road | PM | 20.13 | 13.5 | 55 | 3.29 | 47,686.70 | 8,070.00 |
| SR51-N | SB Watt Ave. | PM | 7.85 | 7.85 | 57 | 3.16 | 37,805.50 | 8,320.00 |
| SR51-N | North of A St. | PM | 2.00 | 2 | 59 | 1.63 | 30,493.00 | 7,030.00 |
| US50-W | 25th Street | PM | 5.32 | L2.166 | 57 | 1.69 | 30,275.60 | 7,035.00 |
| SR99-N | WB 47th Ave | AM | 295.47 | 21 | 56 | 3.71 | 29,450.80 | 4,230.00 |
| I80-W | EB Douglas Blvd | PM | 103.36 | 1.855 | 60 | 1.57 | 27,639.90 | 9,390.00 |
| US50-W | 6th ST | PM | 3.78 | L.624 | 54 | 1.76 | 25,987.80 | 7,310.00 |
| I5-S | L St. | PM | 518.82 | 23.531 | 56 | 1.31 | 23,250.10 | 7,945.00 |
| SR99-S | WB Consumnes River | PM | 290.77 | 16.321 | 58 | 2.28 | 23,017.90 | 6,970.00 |
| SR51-N | 30 & E St. | PM | 1.50 | 1.5 | 51 | 1.14 | 22,963.90 | 6,160.00 |

Notes:

- For the table above, the quarterly delay calculation was based upon a 60mph threshold, for the a.m. or p.m. weekday peak period.
- Caltrans District 3 has plans to construct High Occupancy Vehicle (HOV) lanes on I-5, US-50, SR-51, and I-80 in Sacramento County, I-80 in Yolo County and SR-65 in Placer County. These projects are expected to reduce delay at nearby bottlenecks identified above.
- The HOV lane projects on I-5 and US-50 were nominated for SB-1 funding in 2017. The project on SR 65/I-80 interchange is currently in construction for Phase 1 only which includes the WB I-80 connector to NB SR-65 capacity improvement and Stanford Ranch/Galleria IC improvements. The remainder of the SR 65 project is not currently funded. The project on SR 51 is currently pursuing full funding for PA&ED.

- There are currently no projects planned to address the bottleneck at SR70-E North Beale Rd.
- Our district is preparing to use the information in this report to prioritize funding for projects in the SHOPP mobility programs.

Quarterly Mobility Statistics

| Measure | Graph | Percentage Change | | | | | | | | | |
|--|---|-------------------|-----------------|---------|------|---------|------|---------|------|-------------------|-------------------|
| Vehicle Miles of Travel (VMT) | <p>Miles (Billions)</p> <table><tr><th>Quarter</th><th>VMT (Billions)</th></tr><tr><td>2017 Q4</td><td>2.5</td></tr><tr><td>2018 Q3</td><td>2.4</td></tr><tr><td>2018 Q4</td><td>2.3</td></tr></table> | Quarter | VMT (Billions) | 2017 Q4 | 2.5 | 2018 Q3 | 2.4 | 2018 Q4 | 2.3 | Over one year ago | Over last quarter |
| | | Quarter | VMT (Billions) | | | | | | | | |
| 2017 Q4 | 2.5 | | | | | | | | | | |
| 2018 Q3 | 2.4 | | | | | | | | | | |
| 2018 Q4 | 2.3 | | | | | | | | | | |
| | | -9% ↓ | -4.5% ↓ | | | | | | | | |
| Total Vehicle Hours of Delay (VHD) at 35 mph | <p>Hours (Millions)</p> <table><tr><th>Quarter</th><th>VHD (Millions)</th></tr><tr><td>2017 Q4</td><td>1.10</td></tr><tr><td>2018 Q3</td><td>1.30</td></tr><tr><td>2018 Q4</td><td>1.10</td></tr></table> | Quarter | VHD (Millions) | 2017 Q4 | 1.10 | 2018 Q3 | 1.30 | 2018 Q4 | 1.10 | Over one year ago | Over last quarter |
| | | Quarter | VHD (Millions) | | | | | | | | |
| 2017 Q4 | 1.10 | | | | | | | | | | |
| 2018 Q3 | 1.30 | | | | | | | | | | |
| 2018 Q4 | 1.10 | | | | | | | | | | |
| | | 1.1% ↑ | -9.5% ↓ | | | | | | | | |
| Average Non-Holiday Weekday Vehicle Hours of Delay (VHD) at 35 mph | <p>Hours (Thousands)</p> <table><tr><th>Quarter</th><th>VHD (Thousands)</th></tr><tr><td>2017 Q4</td><td>16.0</td></tr><tr><td>2018 Q3</td><td>17.0</td></tr><tr><td>2018 Q4</td><td>17.0</td></tr></table> | Quarter | VHD (Thousands) | 2017 Q4 | 16.0 | 2018 Q3 | 17.0 | 2018 Q4 | 17.0 | Over one year ago | Over last quarter |
| | | Quarter | VHD (Thousands) | | | | | | | | |
| 2017 Q4 | 16.0 | | | | | | | | | | |
| 2018 Q3 | 17.0 | | | | | | | | | | |
| 2018 Q4 | 17.0 | | | | | | | | | | |
| | | 1.4% ↑ | -0.3% ↓ | | | | | | | | |
| Total Vehicle Hours of Delay (VHD) at 60 mph | <p>Hours (Millions)</p> <table><tr><th>Quarter</th><th>VHD (Millions)</th></tr><tr><td>2017 Q4</td><td>3.1</td></tr><tr><td>2018 Q3</td><td>3.4</td></tr><tr><td>2018 Q4</td><td>3.0</td></tr></table> | Quarter | VHD (Millions) | 2017 Q4 | 3.1 | 2018 Q3 | 3.4 | 2018 Q4 | 3.0 | Over one year ago | Over last quarter |
| | | Quarter | VHD (Millions) | | | | | | | | |
| 2017 Q4 | 3.1 | | | | | | | | | | |
| 2018 Q3 | 3.4 | | | | | | | | | | |
| 2018 Q4 | 3.0 | | | | | | | | | | |
| | | -2.9% ↓ | -10.3% ↓ | | | | | | | | |
| Average Non-Holiday Weekday Vehicle Hours of Delay (VHD) at 60 mph | <p>Hours (Thousands)</p> <table><tr><th>Quarter</th><th>VHD (Thousands)</th></tr><tr><td>2017 Q4</td><td>45</td></tr><tr><td>2018 Q3</td><td>46</td></tr><tr><td>2018 Q4</td><td>43</td></tr></table> | Quarter | VHD (Thousands) | 2017 Q4 | 45 | 2018 Q3 | 46 | 2018 Q4 | 43 | Over one year ago | Over last quarter |
| | | Quarter | VHD (Thousands) | | | | | | | | |
| 2017 Q4 | 45 | | | | | | | | | | |
| 2018 Q3 | 46 | | | | | | | | | | |
| 2018 Q4 | 43 | | | | | | | | | | |
| | | -3.3% ↓ | -5.3% ↓ | | | | | | | | |

| Measure | Graph | Percentage Change | |
|---|---|---|---|
| Average Vehicle Hours of Delay by Day of Week at 60 mph | <p>Hours (Thousands)</p> <p>(5)</p> | Largest Magnitude Decrease over one year ago | Largest Magnitude Decrease over last quarter |
| | | Monday -19.8% | Tuesday -14.8% |
| | | Largest Magnitude Increase over one year ago | Largest Magnitude Increase over last quarter |
| | | Friday 5.9% | Thursday 6.9% |
| Average Vehicle Hours of Delay by Hour of Day at 35 mph, Weekdays | <p>Hours (Thousands)</p> <p>Hour of Day</p> | Largest Magnitude Weekday Decrease over one year ago | Largest Magnitude Weekday Decrease over last quarter |
| | | 5 PM -6.6% | 9 AM -31.2% |
| | | Largest Magnitude Weekday Increase over one year ago | Largest Magnitude Weekday Increase over last quarter |
| | | 3 PM 19% | 5 PM 17.1% |
| Average Vehicle Hours of Delay by Hour of Day at 35 mph, Saturdays | <p>Hours (Thousands)</p> <p>Hour of Day</p> | Largest Magnitude Saturday Decrease over one year ago | Largest Magnitude Saturday Decrease over last quarter |
| | | 6 PM -48.2% | 10 AM -66.2% |
| | | Largest Magnitude Saturday Increase over one year ago | Largest Magnitude Saturday Increase over last quarter |
| | | 3 PM 8.2% | 5 PM 102.2% |
| Average Vehicle Hours of Delay by Hour of Day at 35 mph, Sundays/Holidays | <p>Hours (Thousands)</p> <p>Hour of Day</p> | Largest Magnitude Sun./Holiday Decrease over one year ago | Largest Magnitude Sun./Holiday Decrease over last quarter |
| | | 12 PM -20.9% | 1 PM -62.6% |
| | | Largest Magnitude Sun./Holiday Increase over one year ago | Largest Magnitude Sun./Holiday Increase over last quarter |
| | | 4 PM 12% | — |

| Measure | Graph | Percentage Change | |
|---|-------|--|--|
| Total Vehicle Hours of Delay (VHD) by County at 35 mph | | Largest Magnitude Decrease over one year ago | Largest Magnitude Decrease over last quarter |
| | | Sacramento -5.5% | Placer -42.3% |
| | | Largest Magnitude Increase over one year ago | Largest Magnitude Increase over last quarter |
| | | Yuba 219.2% | Butte 3549.3% |
| Average Non-Holiday Weekday Equivalent Lost Lane Mile Hours at 35 mph | | Largest Magnitude Decrease over one year ago | Largest Magnitude Decrease over last quarter |
| | | PM Peak -5.9% | Off-Peak Night -77.5% |
| | | Largest Magnitude Increase over one year ago | Largest Magnitude Increase over last quarter |
| | | AM Peak 9% | PM Peak 4.9% |
| Average Number of Good and Bad Detectors | | Change in Good over one year ago | Change in Good over last quarter |
| | | 4% | -2% |
| | | Change in Bad over one year ago | Change in Bad over last quarter |
| | | -23% | 5% |

Note: As is identified by the detector health graph above, the District's detector health has improved significantly over the past year, showing a 23 percent reduction in the number of bad detectors. Caltrans has a Traffic Monitoring Station project (EA: 3F840) completed to help improve detector health. Two other projects will cover locations that were missed by this and other previous projects.

| Congestion by Route | | | | | | | | | | | |
|---------------------|------------|-------------------------------------|------------------|------------------|-------------------------------|-------------|-------------------------------|--------------|---------|---------|---------|
| Route | County | Vehicle Hours of Delay at 35 mph | | | Difference 2018 Q4-2017 Q4 | | Difference 2018 Q4-2018 Q3 | | Rank | | |
| | | 2017 Q4 | 2018 Q3 | 2018 Q4 | Absolute | Percentage | Absolute | Percentage | 2017 Q4 | 2018 Q3 | 2018 Q4 |
| SR51 | Sacramento | 262661.4 | 208590.6 | 226277.9 | -36383.5 | -14% | 17687.3 | 8% | 1 | 1 | 1 |
| US50 | Sacramento | 167688.1 | 166021.7 | 176888.6 | 9200.5 | 5% | 10,867 | 7% | 4 | 4 | 2 |
| I5 | Sacramento | 197523 | 198315.1 | 176689.2 | -20833.8 | -11% | -21625.9 | -11% | 2 | 2 | 3 |
| SR99 | Sacramento | 178298.3 | 186883.4 | 175461.5 | -2836.8 | -2% | -11421.9 | -6% | 3 | 3 | 4 |
| I80 | Yolo | 87691.8 | 154206.5 | 101176.5 | 13484.7 | 15% | -53030 | -34% | 5 | 5 | 5 |
| I80 | Placer | 60241.3 | 152257.6 | 70158.9 | 9917.6 | 16% | -82098.7 | -54% | 6 | 6 | 6 |
| SR70 | Yuba | 18284.8 | 48093.8 | 58367.4 | 40082.6 | 219% | 10273.6 | 21% | 10 | 7 | 7 |
| SR65 | Placer | 47349.2 | 35767.1 | 38318.8 | -9030.4 | -19% | 2551.7 | 7% | 7 | 9 | 8 |
| I80 | Sacramento | 41506.9 | 42290.8 | 38128.5 | -3378.4 | -8% | -4162.3 | -10% | 8 | 8 | 9 |
| SR99 | Butte | 2857.4 | 641.7 | 23417.8 | 20560.4 | 720% | 22776.1 | 3549% | 14 | 15 | 10 |
| SR160 | Sacramento | 15225.6 | 10101.5 | 21219.7 | 5994.1 | 39% | 11118.2 | 110% | 11 | 13 | 11 |
| I5 | Yolo | 3104.7 | 10151 | 13287.4 | 10182.7 | 328% | 3136.4 | 31% | 13 | 12 | 12 |
| US50 | Yolo | 32763.8 | 7244.8 | 8763.9 | -23999.9 | -73% | 1519.1 | 21% | 9 | 14 | 13 |
| I80 | Nevada | 1437.9 | 28758 | 8004.1 | 6566.2 | 457% | -20753.9 | -72% | 16 | 10 | 14 |
| US50 | El Dorado | 10414.5 | 11229.3 | 3832.2 | -6582.3 | -63% | (7,397) | -66% | 12 | 11 | 15 |
| SR99 | Sutter | 240 | 178.4 | 560.2 | 320.2 | 133% | 381.8 | 214% | 17 | 17 | 16 |
| SR12 | Sacramento | 0 | 0 | 429.8 | 429.8 | | 429.8 | | | | 17 |
| SR113 | Yolo | 2078.6 | 401.4 | 399 | -1679.6 | -81% | -2.4 | -1% | 15 | 16 | 18 |
| SR267 | Placer | 0.9 | 63.7 | 28.9 | 28 | 3111% | -34.8 | -55% | 18 | 18 | 19 |
| I80 | Sierra | 0 | 41.4 | 9.8 | 9.8 | | -31.6 | -76% | | 19 | 20 |
| SR275 | Yolo | 0 | 0 | 0 | 0 | | 0 | | | | |
| TOTALS | | 1,129,368 | 1,261,238 | 1,141,420 | 12,052 | 1.1% | -119,818 | -9.5% | | | |

The following routes had the highest rate of increase in delay when compared with the previous quarter (Q3 2018).

- SR 99 in Butte County at 3549%
- SR 99 in Sutter County at 214%

The cause of the increase in delay can be mostly attributed to the destructive wildfire in the town of Paradise near the city of Chico. The Camp Fire started on November 8, 2018 and destroyed many homes and business and as a result many people migrated to the city of Chico and other nearby cities in Butte and Sutter counties.

It should be noted that the average weekday vehicle hours of delay at 35 and 60 mph shown on pages 4 and 5 has decreased from the previous quarter, which coincides with a reduction in VMT. The second chart on page 5 shows the weekday AM peak period delay (6:00 to 10:00AM) in third quarter and fourth quarter of 2018, as well as the fourth quarter of 2017, were about equal. Based upon total delay by route, SR-51 continues to be the worst performing freeway in District 3. The top four most congested routes are in Sacramento County, which is due to the higher travel demand associated with Sacramento County's higher population and regional employment and educational centers. As identified on page 3 of this document, Caltrans continues the process to implement HOV lane projects on SR-51, I-5, US-50 in efforts to mitigate congestion on these routes. Further congestion mitigation can be achieved by increasing mode shift away from single occupancy vehicles to higher occupancy vehicles and more utilization of mass transit options. The District continues to explore best possible ways to reduce the delay in the impacted areas of District 3.